

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (Currently amended) A DNA vaccine comprising:
 - a first plasmid containing a DNA fragment encoding a structural protein composed of core, E1 and E2 ~~a core gene, an E1 gene and an E2 gene~~ of hepatitis C virus;
 - a second plasmid containing a DNA fragment encoding a non-structural protein of hepatitis of hepatitis C virus composed of an NS3 gene and NS4 gene of hepatitis C virus; and
 - a third plasmid containing a DNA fragment encoding an NS5 gene of hepatitis C virus,wherein the size of the DNA fragments hepatitis C virus genes contained in the first, second and third plasmids ranges from 2 to 6 kb.
2. (Currently amended) The DNA vaccine as set forth in claim 1, wherein the size of the DNA fragments hepatitis C virus genes contained in the first, second and third plasmids ranges from 2 to 4 kb.
3. (Canceled)
4. (Currently amended) The DNA vaccine as set forth in claim 1, wherein the first plasmid contains a DNA fragment encoding a core gene-protein in which 35–40 amino acids are eliminated from the N-terminal region of the original core protein gene.
5. (Currently amended) The DNA vaccine as set forth in claim 1, wherein the first plasmid contains a DNA fragment encoding a core gene-protein in which 40 amino acids are eliminated from the N-terminal region of the original core protein gene.
6. (Currently amended) The DNA vaccine as set forth in claim 1, wherein the E2 ~~gene of the first plasmid~~ contains a transmembrane domain of an E2 protein.

7. (Previously presented) The DNA vaccine as set forth in claim 1, wherein the first plasmid contains a base sequence represented by SEQ ID No 50.

8. (Previously presented) The DNA vaccine as set forth in claim 7, wherein the first plasmid is pGX10 gDs Δ ST (Accession No: KCCM 10415).

9. (Previously presented) The DNA vaccine as set forth in claim 1, wherein the second plasmid contains a base sequence represented by SEQ ID No 51.

10. (Previously presented) The DNA vaccine as set forth in claim 9, wherein the second plasmid is pGX10 NS34 (Accession No: KCCM 10417).

11. (Previously presented) The DNA vaccine as set forth in claim 1, wherein the third plasmid contains a base sequence represented by SEQ ID No 52.

12. (Previously presented) The DNA vaccine as set forth in claim 11, wherein the third plasmid is pGX10 NS5 (Accession No: KCCM 10416).

13. (Previously presented) The DNA vaccine as set forth in claim 1, wherein the first plasmid contains a base sequence represented by SEQ ID No 50, the second plasmid contains a base sequence represented by SEQ ID No 51, and the third plasmid contains a base sequence represented by SEQ ID No 52.

14. (Previously presented) The DNA vaccine as set forth in claim 13, wherein the first plasmid is pGX10 gDs Δ ST (Accession No: KCCM 10415), the second plasmid is pGX10 NS34 (Accession No: KCCM 10417), and the third plasmid is pGX10 NS5 (Accession No: KCCM 10416).

15. (Currently amended) The DNA vaccine as set forth in claim 14, further comprising ~~wherein the pGX10 hIL-12m is additionally contained.~~

16. (Currently amended) A recombinant adenovirus vaccine comprising:
a first adenovirus containing a DNA fragment encoding a structural protein composed of core, E1 and E2 ~~a core gene, an E1 gene and an E2 gene~~ of hepatitis C virus;
a second adenovirus containing a DNA fragment encoding a non-structural protein of hepatitis of hepatitis C virus composed of an NS3 gene and NS4 gene of hepatitis C virus; and
a third adenovirus containing a DNA fragment encoding an NS5 gene of hepatitis C virus,
wherein the size of the DNA fragments hepatitis C virus genes contained in the first, second and third adenoviruses ranges from 2 to 6 kb.

17. (Currently amended) The recombinant adenovirus vaccine as set forth in claim 16, wherein the size of the DNA fragment hepatitis C virus genes contained in the first, second and third adenoviruses ranges from 2 to 4 kb.

18. (Canceled)

19. (Currently amended) The recombinant adenovirus vaccine set forth in claim 16, wherein the first adenovirus contains a DNA fragment encoding a core protein gene in which 35–40 amino acids are eliminated from N-terminal of the original core protein gene.

20. (Currently amended) The recombinant adenovirus vaccine as set forth in claim 16, wherein the first adenovirus contains a DNA fragment encoding a core protein gene in which 40 amino acids are eliminated from N-terminal of the original core protein gene.

21. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 16, wherein the E2 gene of the first adenovirus contains a transmembrane domain of an E2 protein.

22. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 16, wherein the first adenovirus contains a base sequence represented by SEQ. ID. No 50.

23. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 22, wherein the first adenovirus is rAd gDsΔST (Accession No: KCCM 10418).

24. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 16, wherein the second adenovirus contains a base sequence represented by SEQ. ID. No 54.

25. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 24, wherein the second adenovirus is rAd gDs NS34 (Accession No: KCCM 10420).

26. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 16, wherein the third adenovirus contains a base sequence represented by SEQ. ID. No 52.

27. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 26, wherein the third adenovirus is rAd NS5 (Accession No: KCCM 10419).

28. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 16, wherein the first adenovirus contains a base sequence represented by SEQ. ID. No 50, the second adenovirus contains a base sequence represented by SEQ. ID. No 54, and the third adenovirus contains a base sequence represented by SEQ. ID. No 52.

29. (Previously presented) The recombinant adenovirus vaccine as set forth in claim 28, wherein the first adenovirus is rAd gDs Δ ST (Accession No: KCCM 10418), the second adenovirus is rAd gDs NS34 (Accession No: KCCM 10420), and the third adenovirus is rAd NS5 (Accession No: KCCM 10419).

30. (Currently amended and Withdrawn) A method of ~~enhancing~~ enhancing protective immunity to hepatitis C virus comprising:

priming with the DNA vaccine of claim 1;

boosting with a recombinant adenovirus vaccine, wherein the recombinant adenovirus vaccine comprises:

a first adenovirus containing a DNA fragment encoding a structural protein composed of core, E1 and E2 ~~a core gene, an E1 gene and an E2 gene~~ of hepatitis C virus;

a second adenovirus containing a DNA fragment encoding a non-structural protein of hepatitis of hepatitis C virus composed of an NS3 gene and NS4 gene of hepatitis C virus; and

a third adenovirus containing a DNA fragment encoding an NS5 gene of hepatitis C virus,
wherein the size of the DNA fragments hepatitis C virus genes contained in the first, second and third adenoviruses ranges from 2 to 6 kb.

31. (Withdrawn) The method as set forth in claim 30, wherein the priming frequency of the DNA vaccine is 4-5.

32. (Withdrawn) The method as set forth in claim 31, wherein the priming frequency of the DNA vaccine is 3.

33. (Withdrawn) The method as set forth in claim 30, wherein boosting with the recombinant adenovirus vaccine of claim 28 is conducted once after priming with the DNA vaccine of claim 13 three times.

34. (Withdrawn) The method as set forth in claim 30, wherein CD4⁺ Th1 immune response is increased by boosting with the recombinant adenovirus vaccine of claim 16 after priming with the DNA vaccine of claim 1.

35. (Withdrawn) The method as set forth in claim 30, wherein CD4⁺ Th1 immune response is increased by boosting with the the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of claim 13 three times.

36. (Withdrawn) The method as set forth in claim 30, wherein boosting is conducted with the recombinant adenovirus vaccine of claim 16 after priming with the DNA vaccine of claim 1.

37. (Withdrawn) The method as set forth in claim 30, wherein boosting is conducted

with the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of claim 13 three times.